HEPIALIDAE

Hepialis sylvina L. M

H. hecta L. M

98 George Street, Dunblane, Perthshire. 17.vi.1968.

Some New Species of Lepidoptera from the Fiji Islands

By G. S. Robinson, F.R.E.S.
(Department of Zoology, University of Durham)

During studies of the Fijian macrolepidoptera by H. S. Robinson and myself, several new species have been found. Four new species are described below and an infra-subspecific name is raised to species rank. All type material and genitalia preparations have been deposited in the British Museum (Natural History), hereafter referred to as B.M. (N.H.). Scale lines on the drawings below are all of 1 mm.

Many of the type specimens were taken at Nandarivatu, a locality over 1100 metres above sea level in the north of Viti Levu, about 25 miles from the north coast. This is an area of primary montane rain forest which is only now being exploited by the Department of Natural Resources as an area suitable for the planting of conifers. Most of the forest around Koro-O is as yet unaffected.

Maceda savura sp.n. (Noctuidae, Westermanninae)

Male: Abdomen black; antennae, palps, head and thorax olive-brown; fore and midlegs brown banded with white at articulations; hindlegs white with brown bands; underside of body, coxae and femora of all legs white. Forewing olive-brown dusted with purple; purple occasionally concentrated in medial band and spreading to lower termen; subterminal line of vague purple dots; two transverse purple median bands equidistant from small purple reniform. Hindwing black, two conspicuous large white dots in middle of costa and middle of termen both extending to edge of wing. Male genitalia: (Fig. 1) Valve dilated at apex, furnished with long hairs; clasper short, unspecialised; uncus simple; aedeagus with a group of fine spines at tip.

Female: Similar to male.

Diagnosis: There appears to be no significant difference between the genitalia of *M. savura* and *M. mansueta* Walker (List Specs. Lep. Het. Brit. Mus. 13. 1141, 1857) the only species of *Maceda* close to it. The only difference is in the presence of the two white hindwing dots which are a constant character in *savura* but which in *mansueta* are represented only by a diffuse white mark on the termen. *Savura* is larger than *mansueta*, having a mean wingspan of 34 mm. (♂) and 36 mm. (♀), whereas *mansueta* is 3 mm. smaller.

Distribution: Fairly common in Suva, Nausori and Nandarivatu, all localities on Viti Levu. There is a series of *savura* in the B.M. (N.H.) collection, all labelled "Tinchialit, N. New Caledonia, E. Cheesman." There are no specimens of *mansueta* from New Caledonia but it does occur sparsely in Fiji. Thus it seems that *savura* is a west Pacific offshoot species from *mansueta*, which possibly evolved in Fiji then spread to New Caledonia.

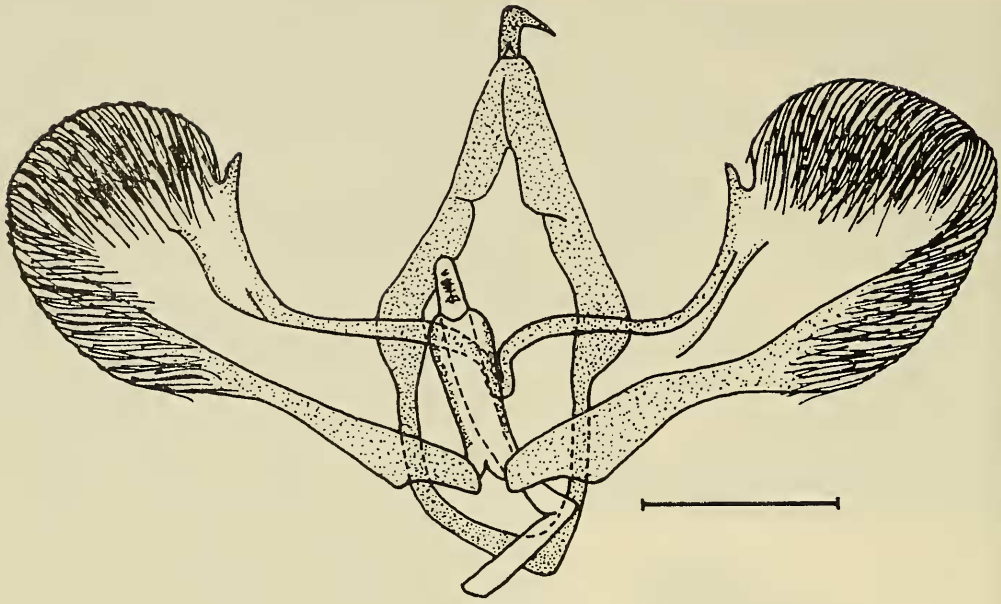

FIGURE 1

Holotype: ♂ Koro-O (Nandarivatu), 6.ix.1967, H. S. Robinson. In B.M. (N.H.).

Paratypes: ♀ Koro-O, 6.ix.1967, at M.V., H. S. Robinson. In B.M. (N.H.). ♂ "Fiji", January 1967, at M.V., H. S. Robinson. In B.M. (N.H.).

Plusia illuminata sp.n. (Noctuidae, Plusiinae)

Male: Head, thorax and legs bronze-brown, abdomen paler. Two conspicuous lateral tufts of black hairs and large tuft of black hairs covering tip of abdomen. Corema black. Forewing ground-colour black-bronze, iridescent; black dot on termen, terminal fascia grey speckled with bronze; two transverse lines between termen and conspicuous gold dot; median fascia between gold dot and costa, extending to meet inner transverse line; large patch of creamy brown scales extends from base of wing, curving outward to gold dot, touching it in some specimens, and continued to costa; small black rectangle extending posteriorly from subcostal vein, edged inwardly by fine white transverse line, lies in the centre of this patch. Hindwing grey-brown dusted with black at termen, fringed with white scales. Genitalia: (Fig. 2) Simple, valves tapering, with a pair of small projections from clavus tipped with very fine spines; two lightly sclerotised plates on juxta; uncus simple, lightly clothed with fine bristles. Aedeagus bearing nine stout cornuti in the middle and a dozen fine thorn-like cornuti at the base.

Female: Unknown.

Diagnosis: Differs from *Plusia acuta* Walker (List Specs. Lep. Het. Brit. Mus. 12. 922, 1857) to which it bears a superficial resemblance in the possession of black abdominal tufts and corema—in *acuta* they are cream—and in the shape of the valves which in *acuta* have a bulbous tip. The most striking diagnostic features of *illuminata* are the creamy-brown basal wing patch and the black tufts and corema. It is separated from *P. eriosoma* Doubleday (Dieff. N. Zeal. 2, p. 285) by the black tufts

(lacking in *eriosoma*) and the longer uncus and slightly shorter valves. *P. chalcites* Esper (Schmett. Ab. Nat. 4) lacks black tufts and corema and has longer and more slender valves than *P. illuminata*.

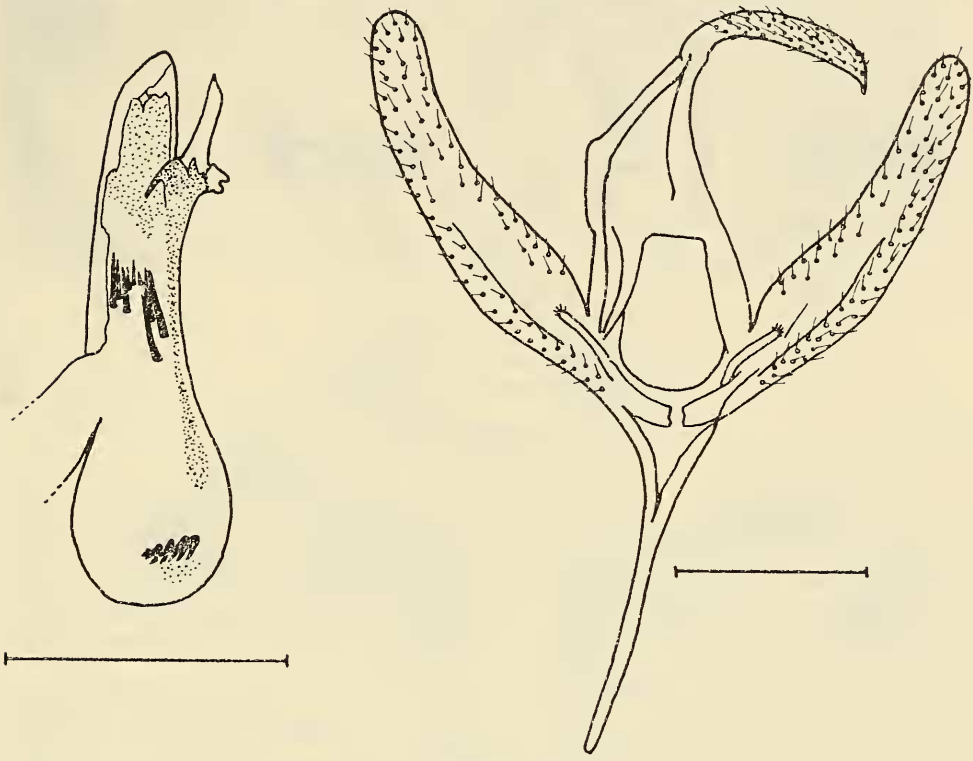

FIGURE 2

The holotype of *Plusia illuminata* was described by Warren (Seitz, *Macrolep*, 3, p. 349) as ab. *illuminata* of *P. eriosoma* but it is clear from the above that Warren's holotype represents a good species and I retain Warren's name, keeping his type specimen as the holotype.

Holotype: (♂) Ninay Vailey, Central Arfak Mts. (New Guinea), 3500 feet, xi.1908-i.1909. In coll. Rothschild, B.M. (N.H.).

Paratypes: (♂) Suva, Fiji. v.1966 at M.V. (H. S. Robinson), in B.M. (N.H.). (♂) Suva, Fiji, ix.1966 at M.V. (H. S. Robinson), in B.M. (N.H.).

Distribution: Known from Suva (Fiji) and from several localities in New Guinea.

Othreis paulii sp.n. (Noctuidae, Ophiderinae)

Male: Head, dorsal region of thorax, upper part of forelegs and palps red-brown; abdomen, underside of head, thorax and forelegs yellow-orange. Forewing olive-green with pale olive-green transverse medial band edged with purple-green; deep terminal band of pale olive-green, tinged with mauve; reniform stigma a small white dot edged with dark olive-green, these dark scales extending in narrow transverse band down middle of medial band from costa to inner margin. Hindwing orange-yellow with large black crescentic mark; termen and apex black with six small terminal white marks between veins. Genitalia: (Fig. 3) Uncus mandibulate: juxta with medial suture, doubly peaked; vesica base heavily sclerotised, set with rows of fine spines; aedeagus with twelve cornuti of varying size.

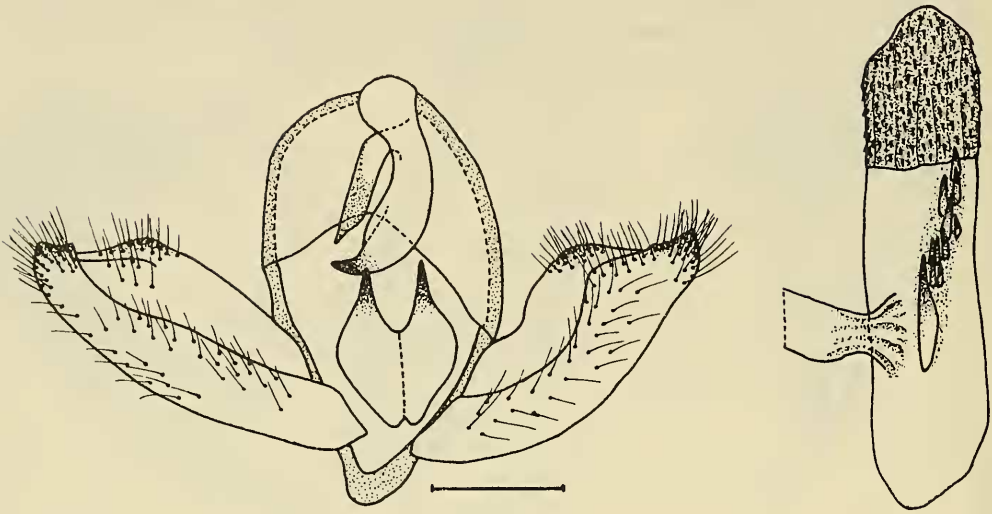

FIGURE 3

Female: Forelegs, palpi and dorsal surface of thorax dark purple-brown and foreleg tibia lacks large tuft of scent-hairs of ♂. Forewing pattern similar to male but ground colour purple, the darker olive-green markings being replaced by black. Whole of forewing mottled with black and lightly speckled with bright green at base and towards inner margin. Hindwing identical to that of ♂.

Diagnosis: The closest apparent ally of *paulii* is *Othreis fullonia* Clerck (Icones II. pl xlviii, figs. 1-4, 1764).

Both ♂ and ♀ differ from *fullonia* in having a much more oblique apex to the forewing. In wing patterning the ♀ differs from *fullonia*, lacking the large triangular reniform, the posteriorly convergent medial band and the white triangle between the reniform and tornus. The male of *paulii* is similar to that of *fullonia* but the tear-drop shaped reniform stigma of *fullonia* is absent in *paulii*. The best differentiating character in the male is the shape of the juxta; in *fullonia* it is elongated, about 4 mm. long whereas in *paulii* it is shortened, about 1 mm. in length. There are size differences too: ♂ *paulii* have a wingspan of 70 mm., the ♀ 76 mm., whereas the respective measurements of *fullonia* are 91 and 93 mm.

Distribution: Known only from Nandarivatu, northern Viti Levu, Fiji, more than 1100 m. above sea level.

Holotype: ♂ Nandarivatu 5.ix.1967 at M.V. (H. S. Robinson). In B.M. (N.H.).

Paratypes: ♂ Koro-O (Nandarivatu) 6.ix.1967 at M.V. (H. S. Robinson), in B.M (N.H.). ♀ Nandarivatu 5.ix.1967 at M.V. (H. S. Robinson). In B.M. (N.H.).

This species is named after Mr. D. K. Paul, Assistant Conservator of Forests, Fiji, who made it possible for H. S. Robinson and me to collect at Nandarivatu and to whom we wish to express our thanks for his help and encouragement.

Dasychira nandarivatu sp.n. (Lymantriidae)

Male: Head, thorax and abdomen white speckled with brown; tarsi with brown bands; antennae white with brown pectinations. Forewing ground-colour pale grey; terminal fascia brown; termen with a line of crescentic black spots; subterminal white line parallel to termen edged inwardly by grey transverse band. Medial transverse band brown within a border of narrow white transverse lines edged with black; two black transverse lines at wing base bordering a brown field (black in several of the paratypes). Reniform conspicuous, obliquely elongate, brown edged with black. Hindwing grey with pale brown subterminal line. Wingspan: Type—34 mm. Mean of 9 males—34 mm.

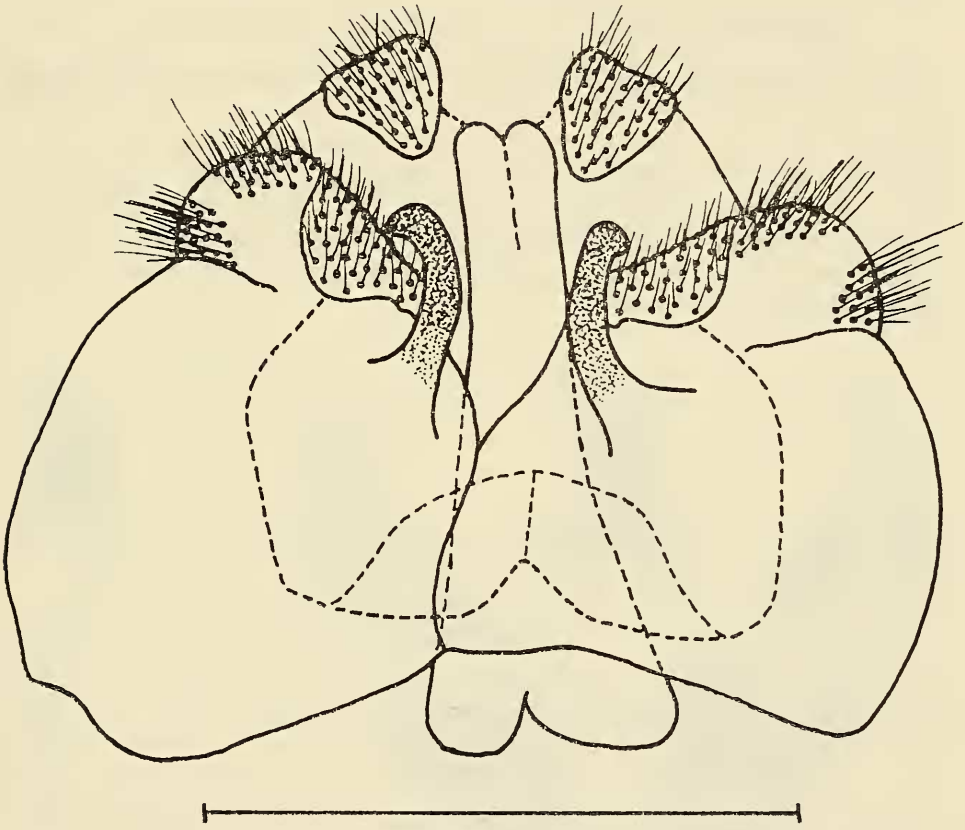

FIGURE 4

Genitalia: (Fig. 4) Remarkably small; valves fused ventrally, bearing two slightly curved claspers with clubbed ends. Uncus apparently absent, functionally replaced by a pair of finely spined, flap-like socii. Aedeagus simple, longitudinally channelled on either side and only thinly sclerotised.

Diagnosis. Differs from *D. fidgiensis* Mabille & Vuillet (Novit. Lep. p. 5, t.1., f.2,) which it superficially resembles in having smaller genitalia (1·5 mm. in width as opposed to 2·5 mm. in *fidigiensis*), in the claspers being almost straight and slender (in *fidgiensis* they are swollen and curved back on themselves) and in having shorter and stubbier socii. The wing pattern differs in that *fidgiensis* is never so heavily marked with

brown; the forewings of *nandarivatu* appear much shorter and hence more rounded. The distinct reniform of *nandarivatu* is never so conspicuous in *fidgiensis*. The dark hindwing termen of *fidgiensis* is lacking in *nandarivatu*. *Nandarivatu* is consistently smaller, *fidgiensis* rarely having a wingspan of less than 40 mm.

Distribution: Known only from Nandarivatu, north Viti Levu, Fiji, more than 1100 m. above sea level.

Holotype: ♂ Nandarivatu, 5.ix.1967 at M.V. (H. S. Robinson). In B.M. (N.H.).

Paratypes: 8 ♂♂ Koro-O (Nandarivatu), 6.ix.1967 at M.V. (H. S. Robinson). In B.M. (N.H.).

Thalassodes figurata sp.n. (Geometridae, Geometrinae)

Male: Head, thorax and abdomen green, white below; abdomen with white intermittent dorsal line. Legs and antennae pale creamy brown. Forewing rich bluish green marked at termen and along costa with crescentic white dots. Median line of three white crescents between 4, 3, 2 and 1b, heavily shaded towards termen with white dots. Hindwing rich bluish green speckled uniformly with white crescents except between 2 and 3 and in the anal fold. Holotype wingspan 40 mm.; mean wingspan of paratypes: 42 mm.

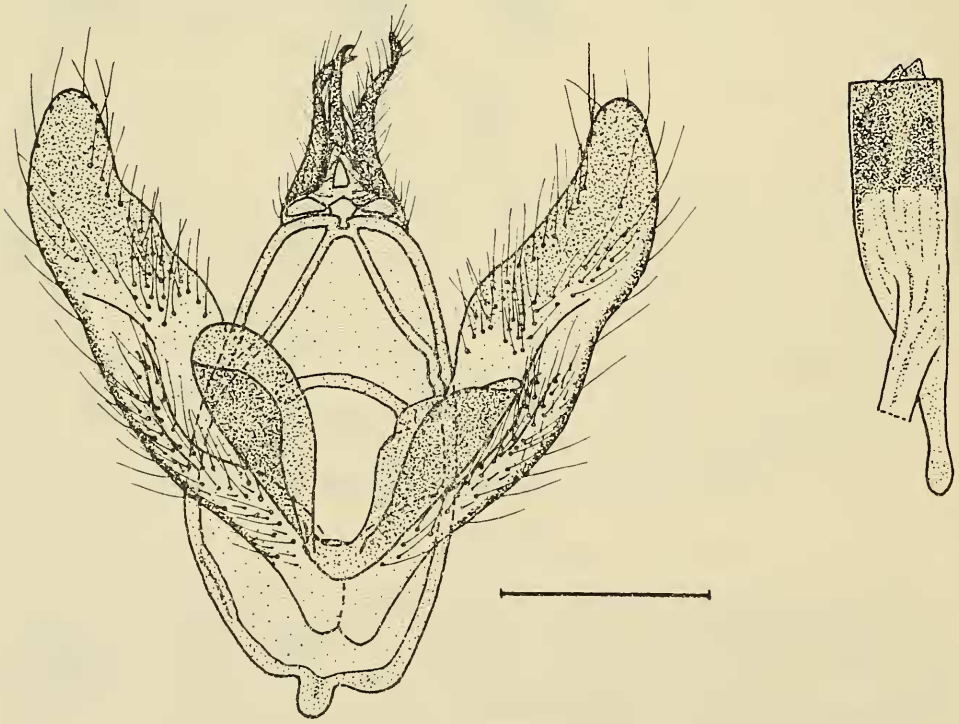

FIGURE 5

Genitalia: (Fig. 5) Uncus simple; two long slender socii; pair of small heavily sclerotised flaps at base of valves. Vesica base heavily sclerotised and set with very fine spines; no cornuti.

Female: Similar to male but larger (mean wingspan of paratypes: 48 mm.) and tip of forewing more oblique.

Diagnosis: *Figurata* appears to have no close ally in *Thalassodes* and is distinctively different in wing pattern alone from every other member of the genus.

Distribution: Known from Nandarivatu, Fiji, over 1100 m. above sea level. There is one specimen from Vunidawa, Fiji (R. H. Phillips), in coll. B.M. (N.H.) which was given the MS name of *figurata* by L. B. Prout.

Holotype; ♂ Nandarivatu, 28.vi.1968 at M.V. (H. S. Robinson). In B.M. (N.H.).

Paratypes: 13 ♂♂, 10 ♀♀ Nandarivatu, ix.1967 and 28.vi.1968 at M.V. (H. S. Robinson). In coll. H. S. and G. S. Robinson and in B.M. (N.H.).

I am very grateful to Messrs. D. S. Fletcher and A. H. Hayes of the British Museum (Natural History) and to Dr. L. Davies and Mr. J. Richardson of the Department of Zoology, University of Durham, for their help and encouragement in the preparation of this paper.

Rearing the Jersey Tiger (*Eupalagia quadripunctaria* Poda)

By L. G. F. Waddington

Previous articles of mine on the above subject in issues of Sept. 1963 and Nov. 1964 described how a measure of success finally rewarded my efforts, but two factors still remained to be solved to my satisfaction.

Firstly, the best method of dealing with newly hatched larvae, and secondly the best foodplant.

Thanks to the kindness of my friend at Plympton, I was supplied with batches of ova in August 1965 and August 1967. Only a limited number were retained and the remainder were given to other collectors.

As I was already critical of starting the larvae off in plastic boxes, I decided to use plastic tumblers instead.

I had a supply of these—fitted with bakelite lids—which originally contained Abbey Cane Syrup, marketed by Martineaus of London, and with the aid of a large red hot nail I melted a circle in the lid and an $\frac{1}{8}$" hole in the bottom.

After glueing a circle of muslin inside the lid, they were ready for use; I treated two of these tumblers and stood them in glass tumblers which provided stability and left room for a little water at the bottom for the foodplant.

Dealing with the 1965 batch, I put dead nettle in one tumbler and stinging nettle in the other, making sure that the top of the spray impinged on the muslin.

As soon as the larvae hatched out, they were put straight in the tumblers and these were housed in the garage; it was noticeable that the larvae soon sought the muslin-covered lid where air and food were available.

Condensation was very slight and confined to the bottom half of the tumbler, and consequently no losses occurred through this.

By Oct. 21st many had changed skins 3 times, and on account of the cold were brought into the kitchen.